

CLAIMS

1. A balanced plug valve comprising a housing having fluid conducting inlet and outlet ports and an upper terminating surface, said housing having an essentially central, vertical bore incorporating a number of stepped diameter portions one of which straddles said inlet and outlet ports and forming a first seating surface and where a second stepped diameter incorporates a second seating surface, a valve plug slidably arranged within said vertical bore and having stepped diameter portions capable of engaging said first and second seating surfaces when in the lowest sliding position, closure means suitably fastened to the upper terminating surface of said housing capable of preventing fluid egress from said housing bore, and means to motivate said valve plug.
2. A balanced plug valve according to claim 1, wherein said plug having one or more vertical bores capable of communicating fluid from below said first seating surface to an area above said second seating surface.
3. A balanced plug valve according to claim 1, wherein one of the ports of the housing is configured at an angle of between 30 and 50 degrees to the horizontal axis and intersecting one of the stepped diameter bores of said housing providing thereby an essentially elliptical opening which is partially exposed by said valve plug when in its highest travel position.

4. A balanced plug valve according to claim 1, wherein said closure means consists of a bonnet having a lower, flat, terminating surface engaging a complimentary configuration at the upper terminating end of said housing.
5. A balanced plug valve according to claim 4, where a flat gasket is located below said flat, terminating surface of said bonnet.
6. A balanced plug valve according to claim 4, where a thin, flexible metal washer is placed under said flat, terminating surface of said bonnet, and having an internal diameter somewhat smaller than that of the corresponding diameter of said stepped housing bore, and being capable of forming said secondary sealing surface capable of engaging one of the stepped diameter portions of said plug when the latter is in the lowest sliding position.
7. A balanced plug valve according to claim 1, wherein said valve plug has a lower, terminating contoured configuration capable of forming a variable restriction for fluid flow passing between said inlet and outlet ports.
8. A balanced plug valve according to claim 1, wherein said means to motivate the valve plug consists of a cylindrical valve stem, whose lower end is suitably fastened to said plug and whose upper end extends through said closure means.

9. A balanced plug valve according to claim 8, wherein said closure means incorporates an adjustable packing portion capable of sealing said valve stem.
10. A balanced plug valve according to claim 1, wherein the stepped diameter portion of said housing bore located above said first seating surface is capable of providing a close-fit guiding surface for said sliding valve plug throughout a major portion of its sliding travel.
11. A balanced plug valve according to claim 1, wherein said closure means consists of a bonnet having a threaded exterior engaging a similar threaded opening within the upper terminating surface of said housing.